

File Tools View subqueries (Protected View) - Word

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A simple subquery using two tables: In this example I want all the donations for Animal Home. Let's say, I do not know the driveno for Animal Home. I can do an inner select to get the driveno and then do the outer select to get all the donations with that driveno. Below the example, I will do the selects individually.

```
mysql> select * from donation where driveno in
-> (select driveno from drive where drivename = 'Animal Home');
+-----+-----+-----+-----+
| idno | driveno | condate | contamt |
+-----+-----+-----+-----+
| 12121 | 200     | 2005-12-30 | 40.00 |
| 23456 | 200     | 2005-12-29 | 100.00 |
+-----+-----+-----+-----+
2 rows in set (0.00 sec)
```

```
mysql> select * from donation;
+-----+-----+-----+-----+
| idno | driveno | condate | contamt |
+-----+-----+-----+-----+
| 11111 | 100     | 2005-12-28 | 25.00 |
| 12121 | 200     | 2005-12-30 | 40.00 |
| 23456 | 100     | 2005-11-20 | 20.00 |
| 33333 | 300     | 2005-11-30 | 10.00 |
| 12121 | 300     | 2005-12-31 | 50.00 |
| 23456 | 200     | 2005-12-29 | 100.00 |
+-----+-----+-----+-----+
6 rows in set (0.00 sec)
```

```
mysql> select * from drive;
+-----+-----+-----+-----+
| driveno | drivename | drivechair | lastyear | thisyear |
+-----+-----+-----+-----+
| 100     | Kids Shelter | Ann Smith | 10000.00 | 0.00 |
| 200     | Animal Home | Linda Grant | 5000.00 | 0.00 |
| 300     | Health Aid | David Ross | 7000.00 | 0.00 |
+-----+-----+-----+-----+
```

Looking up Animal Home in the drive table gives me a driveno of 200. I then go to the donation table and find all the donations with a driveno of 200.

This example uses the same table for the outer query and the inner query:

```
pgrocer@cisweb:~
mysql> select * from drive where drivename = 'Animal Home';
```

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Windows taskbar: 9:46 AM 2/28/2019

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```
pgrocer@cisweb:~$ mysql> select idno, name, yrgoal, contact
-> from donor
-> where yrgoal > 50
-> (select yrgoal
-> from donor
-> where name like '%Ash');
+-----+
| idno | name           | yrgoal | contact |
+-----+
| 11111 | Stephen Daniels | 500.00 | Susan Jones |
| 12121 | Jennifer Ames  | 400.00 | John Adams |
| 33333 | Nancy Taylor   | 150.00 | Amy Costa  |
| 34567 | Robert Brooks  | 250.00 | John Smith |
| 44444 | Al Richards    | 300.00 | John Smith |
| 55555 | Sarah Grove    | 300.00 | John Adams |
| 88888 | Dick Stretton  | 1000.00 | Amy Costa  |
| 72901 | Mary Jones     | 5000.00 | Amy Costa  |
| 72727 | Arthur Lyman   | 300.00 | Amy Costa  |
| 45678 | Susan Smith    | 200.00 | Amy Costa  |
+-----+
10 rows in set (0.03 sec)

mysql> select yrgoal from donor where name like '%Ash';
+-----+
| yrgoal |
+-----+
| 50.00 |
+-----+
1 row in set (0.00 sec)
```

The inner select returns 50 so the outer select is looking for yrgoal >50

I want to find out what the year goal is for someone with the last name of Ash. Once I find that out, I want to display everyone that has a year goal greater than the year goal of Ash. Notice the structure: the inner select is retrieving a yrgoal and the outer select is testing against yrgoal.

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pgrocer@cisweb:~

GNU nano 2.3.1 File: /var/tmp/sql6BeX9s

```
select * from
```

You can edit in putty at the prompt (type in Edit)and when you fix it do the WriteOut and the Exit

[Read 1 line]

^G Get Help ^O WriteOut ^R Read File ^Y Prev Page ^K Cut Text ^C Cur Pos
^X Exit ^J Justify ^W Where Is ^V Next Page ^U UnCut Text ^T To Spell

```
mysql> select yrgoal from donor where name like '%Ash';  
+-----+  
| yrgoal |  
+-----+  
| 50.00 |  
+-----+  
1 row in set (0.00 sec)
```

I want to find out what the year goal is for someone with the last name of Ash. Once I find that out, I want to display everyone that has a year goal greater than the year goal of Ash. Notice the structure: the inner select is retrieving a yrgoal and the outer select is testing against yrgoal.

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```
mysql> select name, yrgoal
-> from donor
-> where yrgoal >=
-> (select avg(yrgoal)
-> from donor);
```

name	yrgoal
Dick Stretton	1000.00
Mary Jones	5000.00

2 rows in set (0.01 sec)

```
mysql> select avg(yrgoal) from donor;
```

avg(yrgoal)
768.181818

1 row in set (0.00 sec)

```
mysql> select name, yrgoal from donor;
```

name	yrgoal
Stephen Daniels	500.00
Jennifer Ames	400.00
Carl Hersey	NULL
Susan Ash	50.00
Nancy Taylor	150.00
Robert Brooks	250.00
Al Richards	300.00
Sarah Grove	300.00
Dick Stretton	1000.00
Mary Jones	5000.00
Arthur Lyman	300.00
Susan Smith	200.00

12 rows in set (0.00 sec)

Outer select looks for yrgoal >= the average which is 768+

The inner select finds the average yrgoal from the donor file and then the outer select finds all donors where the yrgoal is greater than or equal to the average. Again the inner select is returning the average for yrgoal and the outer select is testing against yrgoal.

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```
pgrocer@cisweb:~
mysql> select name, yrgoal
-> from donor
-> where idno in
-> (select idno
-> from donation
-> where contamt > 20);
```

in allows a group to be returned

name	yrgoal
Stephen Daniels	500.00
Jennifer Ames	400.00
Susan Ash	50.00

3 rows in set (0.00 sec)

```
mysql> select idno, name, yrgoal from donor;
```

idno	name	yrgoal
11111	Stephen Daniels	500.00
12121	Jennifer Ames	400.00
22222	Carl Hersey	NULL
23456	Susan Ash	50.00
33333	Nancy Taylor	150.00
34567	Robert Brooks	250.00
44444	Al Richards	300.00
55555	Sarah Grove	300.00
88888	Dick Stretton	1000.00
72901	Mary Jones	5000.00
72727	Arthur Lyman	300.00
45678	Susan Smith	200.00

12 rows in set (0.00 sec)

```
mysql> select idno from donation where contamt > 20;
```

idno
11111
12121
12121
23456

4 rows in set (0.00 sec)

I am using two tables. I am using the inner select to look at the donation table and select all idno where the contamt is greater than 20. The outer select then prints the name and yrgoal from the donor table for

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```
pgrocer@cisweb:~  
mysql> select state, contact, sum(yrgoal)  
-> from donor  
-> group by state, contact  
-> having sum(yrgoal) >  
-> (select avg(yrgoal)  
-> from donor);  
+-----+-----+-----+  
| state | contact | sum(yrgoal) |  
+-----+-----+-----+  
| MA | Amy Costa | 800.00 |  
| MA | John Adams | 1150.00 |  
| RI | Amy Costa | 5000.00 |  
+-----+-----+-----+  
3 rows in set (0.00 sec)  
  
mysql> select avg(yrgoal) from donor;  
+-----+  
| avg(yrgoal) |  
+-----+  
| 768.181818 |  
+-----+  
1 row in set (0.00 sec)  
  
mysql> select state, contact, sum(yrgoal)  
-> from donor  
-> group by state, contact  
-> having sum(yrgoal) > 768.181818;  
+-----+-----+-----+  
| state | contact | sum(yrgoal) |  
+-----+-----+-----+  
| MA | Amy Costa | 800.00 |  
| MA | John Adams | 1150.00 |  
| RI | Amy Costa | 5000.00 |  
+-----+-----+-----+  
3 rows in set (0.00 sec)
```

I am only using the donor table. In the inner select I am finding the average of yrgoal and then in the outer select I am showing the groups by state and contact within state where the sum of the yrgoal is

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```
pgrocer@cisweb:~$ mysql> select name, city, state, yrgoal, contact, datefst
-> from donor
-> where datefst in
-> (select datefst
-> from donor
-> where yrgoal > 100)
-> and state =
-> (select state
-> from donor
-> where city = 'Canton');
+-----+
| name      | city      | state | yrgoal | contact | datefst |
+-----+
| Stephen Daniels | Seekonk   | MA    | 500.00 |          | 2002-08-09 |
| Nancy Taylor   | Fall River | MA    | 150.00 | John Adams | 2004-10-30 |
| Robert Brooks  | Fall River | MA    | 250.00 | Amy Costa | 2003-09-08 |
| Al Richards    | Braintree | MA    | 300.00 | John Smith | 2002-10-10 |
| Sarah Grove    | Seekonk   | MA    | 300.00 | John Smith | 2001-10-12 |
| Dick Stretton  | Braintree | MA    | 1000.00 | John Adams | 2002-02-20 |
| Arthur Lyman   | Canton    | MA    | 300.00 | Amy Costa | 2006-11-11 |
| Susan Smith    | Fall River | MA    | 200.00 | Amy Costa | 2007-10-08 |
+-----+
8 rows in set (0.00 sec)

mysql> select state from donor where city = 'Canton';
+-----+
| state |
+-----+
| MA    |
+-----+
1 row in set (0.00 sec)
```

```
pgrocer@cisweb:~$ mysql> select datefst from donor;
+-----+
| datefst |
+-----+
| 2002-08-09 |
| 2000-11-09 |
| 2002-09-30 |
| 2000-03-04 |
| 2004-10-30 |
| 2003-09-08 |
| 2002-10-10 |
| 2001-10-12 |
| 2002-02-20 |
| 2008-10-10 |
| 2006-11-11 |
```

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```
pgrocer@cisweb:~
mysql> select *
-> from donor
-> where contact in
-> (select contact
-> from donor
-> where state = 'RI')
-> or
-> contact in
-> (select contact
-> from donor
-> where yrgoal > 1000);
+-----+
| idno | name          | stadr          | city          | state | zip  | datefsl |
| yrgoal | contact       |                |               |       |      |         |
+-----+
| 12121 | Jennifer Ames | 24 Benefit St  | Providence    | RI    | 02045 | 2000-1: |
09 | 400.00 | Susan Jones |
| 22222 | Carl Hersey   | 24 Benefit St  | Providence    | RI    | 02045 | 2002-0: |
30 | NULL | Susan Jones |
| 23456 | Susan Ash     | 21 Main St     | Fall River    | MA    | 02720 | 2000-0: |
04 | 50.00 | Amy Costa |
| 34567 | Robert Brooks | 36 Pine St     | Fall River    | MA    | 02720 | 2003-0: |
08 | 250.00 | Amy Costa |
| 72901 | Mary Jones    | 89 Prospect Ave | Providence    | RI    | 02111 | 2008-1: |
10 | 5000.00 | Amy Costa |
| 72727 | Arthur Lyman  | 12 Main St     | Canton        | MA    | 02667 | 2006-1: |
11 | 300.00 | Amy Costa |
| 45678 | Susan Smith   | 2 Main St      | Fall River    | MA    | 02720 | 2007-1: |
08 | 200.00 | Amy Costa |
+-----+
7 rows in set (0.00 sec)
```

I what to select all colums from donor in the outer select where the contact is in the list that the first inner select comes up with OR the contact is in the list that the second inner select comes up with. Again I showed the two inner selects separately below to show what contact would be selected by each.

```
pgrocer@cisweb:~
mysql> select contact from donor where state = 'RI';
+-----+
```

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```
pgrocer@cisweb:~
mysql> select *
-> from donation
-> where contamt > any
-> (select min(yrgoal/3)
-> from donor
-> group by state);
```

idno	driveno	condat	contamt
11111	100	2005-12-28	25.00
12121	200	2005-12-30	40.00
23456	100	2005-11-20	20.00
12121	300	2005-12-31	50.00
23456	200	2005-12-29	100.00

5 rows in set (0.00 sec)

```
mysql> select min(yrgoal/3)
-> from donor group by state;
```

min(yrgoal/3)
16.6667
133.3333

2 rows in set (0.00 sec)

```
mysql> select idno, contamt from donation;
```

idno	contamt
11111	25.00
12121	40.00
23456	20.00
33333	10.00
12121	50.00
23456	100.00

6 rows in set (0.00 sec)

any and all also work when a group is returned.

Here I am displaying all of the information from the donation table where the contamt than any of the

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```
pgrocer@cisweb:~  
mysql> select * from donor  
-> where yrgoal > all  
-> (select min(yrgoal)  
-> from donor  
-> group by state);
```

idno	name	stadr	city	state	zip	datef
11111	Stephen Daniels	123 Elm St	Seekonk	MA	02345	2002-8-09
88888	Dick Stretton	3 South St	Braintree	MA	02184	2002-2-20
72901	Mary Jones	89 Prospect Ave	Providence	RI	02111	2008-0-10

```
3 rows in set (0.00 sec)
```

```
mysql> select min(yrgoal) from donor group by state;
```

min(yrgoal)
50.00
400.00

I am using ALL in the outer select. The inner select comes back with the minimum yrgoal grouped by state. The outer select then gives the information about any donor that is greater than the minimum in ALL of the states.

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Notes on Relational Databases: x +

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www.pgrocer.net/Cis54/relation.html

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Notes on Relational Databases:

A database can consist of multiple tables/files. These tables/files are related to each other in some way so that the programmer or developer can access information from multiple table/files at the same time. A database management system is the database and its functionality. In today's PC environment, the model of relating the table/files within a database is the relational database model. Things that must be considered in a relational database:

- Analyze the data and determine how to design the files - consider whether the data is in a one to one relationship, a one to many relationship or a many to many relationship.
- Consider functional dependence: An attribute B, is functionally depended on another attribute, A if a value for A determines a single value for B at any one time.
- The primary key has all attributes in the table functionally dependent upon it - to simplify you can think of the primary key as the minimum collection of fields that will get you one and only one record from the table/file.
- We must also consider the rules of normalization and establish the relationships so that the database is in third normal form.

- A relation is in **first normal form** if it does not contain repeating groups.
- A relation is in **second normal form** if it is in first normal form and no non-key attribute is dependent on only a portion of the primary key. (Note: an attribute is a non-key attribute if it is not a part of the primary key).
- A relation is in **third normal form** if it is in second normal form and if the only determinants it contains are candidate keys. (Note: any attribute that determines another attribute is called a determinant).

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10:11 AM
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Title: Feb 28-10:11 AM (11 of 24)

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Using multiple tables:

```
mysql> desc donor2011;
```

Field	Type	Null	Key	Default	Extra
didno	char(5)				
name	char(15)	YES		NULL	
stadr	char(15)	YES		NULL	
city	char(10)	YES		NULL	
state	char(2)	YES		NULL	
zip	char(5)	YES		NULL	
datefst	date	YES		NULL	
yrgoal	float(7,2)	YES		NULL	
contact	char(12)	YES		NULL	

9 rows in set (0.00 sec)

```
mysql> select * from donor2011;
```

didno	name	stadr	city	state	zip	datefst
yrgoal	contact					
11111	Stephen Daniels	123 Elm St	Seekonk	MA	02345	2002-08-09
500.00	John Smith					
12121	Jennifer Ames	24 Benefit St	Providence	RI	02045	2000-11-09
400.00	Susan Jones					
22222	Carl Hersey	24 Benefit St	Providence	RI	02045	2002-09-30
	Susan Jones					
23456	Susan Ash	21 Main St	Fall River	MA	02720	2000-03-04
50.00	Amy Costa					
33333	Nancy Taylor	26 Oak St	Fall River	MA	02720	2004-10-30
150.00	John Adams					
34567	Robert Brooks	36 Pine St	Fall River	MA	02720	2003-09-08
250.00	Amy Costa					

6 rows in set (0.00 sec)

If I used the alter to add a primary key it would show under key.

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```
| 150.00 | John Adams |
| 34567 | Robert Brooks | 36 Pine St | Fall River | MA | 02720 | 2003-09-08
| 250.00 | Amy Costa |
+-----+-----+-----+-----+-----+-----+
+-----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)

mysql> desc donation2011;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| idno | char(5) | | | | |
| driveno | char(3) | | | | |
| condate | date | YES | | NULL | |
| contamt | float(6,2) | YES | | NULL | |
+-----+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql> select * from donation2011;
+-----+-----+-----+-----+
| idno | driveno | condate | contamt |
+-----+-----+-----+-----+
| 11111 | 100 | 2005-12-28 | 25.00 |
| 12121 | 200 | 2005-12-30 | 40.00 |
| 23456 | 100 | 2005-11-20 | 20.00 |
+-----+-----+-----+-----+

| 33333 | 300 | 2005-11-30 | 10.00 |
+-----+-----+-----+-----+
4 rows in set (0.00 sec)

mysql> desc drive2011;
+-----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+-----+-----+-----+-----+-----+-----+
| driveno | char(3) | | | | |
+-----+-----+-----+-----+-----+-----+
```

PK

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```
| 33333 | 300 | 2005-11-30 | 10.00 |
+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

mysql> desc drive2011;

Field	Type	Null	Key	Default	Extra
driveno	char(3)				
drivename	char(15)	YES		NULL	
drivechair	char(12)	YES		NULL	
lastyear	float(8,2)	YES		NULL	
thisyear	float(8,2)	YES		NULL	

5 rows in set (0.00 sec)

mysql> select * from drive2011;

driveno	drivename	drivechair	lastyear	thisyear
100	Kids Shelter	Ann Smith	10000.00	0.00
200	Animal Home	Linda Grant	5000.00	0.00
300	Health Aid	David Ross	7000.00	0.00

3 rows in set (0.00 sec)

I have been making copies and changing things enough that I changed idno on the donor table to didno - I did not meant to do that. I like to keep matching fields the same name for my own sanity.

mysql> select didno, name, contamt
-> from donor2011, donation2011
-> where donor2011.didno = donation2011.idno;

didno	name	contamt
11111	Stephen Daniels	25.00

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```

+-----+
| didno | char(5) | | | | | |
| name  | char(15)| YES | | NULL | | |
| stadr | char(15)| YES | | NULL | | |
| city  | char(10)| YES | | NULL | | |
| state | char(2) | YES | | NULL | | |
| zip   | char(5) | YES | | NULL | | |
| datefst | date   | YES | | NULL | | |
| yrgoal | float(7,2)| YES | | NULL | | |
| contact | char(12)| YES | | NULL | | |
+-----+
9 rows in set (0.00 sec)

mysql> select * from donor2011;
+-----+
| didno | name          | stadr          | city          | state | zip  | datefst |
| yrgoal | contact       |                |               |       |      |         |
+-----+
| 11111 | Stephen Daniels | 123 Elm St    | Seekonk      | MA    | 02345 | 2002-08-09 |
| 500.00 | John Smith    |              |              |       |      |          |
| 12121 | Jennifer Ames  | 24 Benefit St | Providence   | RI    | 02045 | 2000-11-09 |
| 400.00 | Susan Jones   |              |              |       |      |          |
| 22222 | Carl Hersey    | 24 Benefit St | Providence   | RI    | 02045 | 2002-09-30 |
| NULL  | Susan Jones   |              |              |       |      |          |
| 23456 | Susan Ash      | 21 Main St    | Fall River   | MA    | 02720 | 2000-03-04 |
| 50.00  | Amy Costa     |              |              |       |      |          |
| 33333 | Nancy Taylor   | 26 Oak St     | Fall River   | MA    | 02720 | 2004-10-30 |
| 150.00 | John Adams     |              |              |       |      |          |
| 34567 | Robert Brooks  | 36 Pine St    | Fall River   | MA    | 02720 | 2003-09-08 |
| 250.00 | Amy Costa     |              |              |       |      |          |
+-----+
6 rows in set (0.00 sec)

mysql> desc donation2011;
+-----+
| Field | Type          | Null | Key | Default | Extra |
+-----+
| idno  | char(5)       |      |     |         |       |
| driveno | char(3)      |      |     |         |       |
| condate | date         | YES  |     | NULL    |       |
| contamt | float(6,2)    | YES  |     | NULL    |       |
+-----+

```

didno

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```
| 200 | Animal Home | Linda Grant | 5000.00 | 0.00 |
| 300 | Health Aid | David Ross | 7000.00 | 0.00 |
+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

I have been making copies and changing things enough that I changed idno on the donor table to didno - I did not mean to do that. I like to keep matching fields the same name for my own sanity.

```
mysql> select didno, name, contamt
-> from donor2011, donation2011
-> where donor2011.didno = donation2011.idno;
```

```
+-----+-----+-----+
| didno | name          | contamt |
+-----+-----+-----+
| 11111 | Stephen Daniels | 25.00 |
| 12121 | Jennifer Ames   | 40.00 |
| 23456 | Susan Ash       | 20.00 |
| 33333 | Nancy Taylor    | 10.00 |
+-----+-----+-----+
4 rows in set (0.00 sec)
```

```
mysql> select didno, name, contamt, donation2011.driveno, drivename
-> from donor2011, donation2011, drive2011
-> where donor2011.didno = donation2011.idno and donation2011.driveno =
drive2011.driveno;
```

```
+-----+-----+-----+-----+-----+
| didno | name          | contamt | driveno | drivename |
+-----+-----+-----+-----+-----+
| 11111 | Stephen Daniels | 25.00 | 100 | Kids Shelter |
| 23456 | Susan Ash       | 20.00 | 100 | Kids Shelter |
| 12121 | Jennifer Ames   | 40.00 | 200 | Animal Home |
| 33333 | Nancy Taylor    | 10.00 | 300 | Health Aid |
+-----+-----+-----+-----+-----+
4 rows in set (0.00 sec)
```

Donor - donation

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File Tools View multipletables (Protected View) - Word SMART Ink

PROTECTED VIEW Be careful—files from the Internet can contain viruses. Unless you need to edit, it's safer to stay in Protected View. Enable Editing

200 | Animal Home | Linda Grant | 5000.00 | 0.00 |
300 | Health Aid | David Ross | 7000.00 | 0.00 |
+-----+
3 rows in set (0.00 sec)

I have been making copies and changing things enough that I changed idno on the donor table to didno - I did not mean to do that. I like to keep matching fields the same name for my own sanity.

mysql> select didno, name, contamt
-> from donor2011, donation2011
-> where donor2011.didno = donation2011.idno;

+-----+
| didno | name | contamt |
+-----+
11111	Stephen Daniels	25.00
12121	Jennifer Ames	40.00
23456	Susan Ash	20.00
33333	Nancy Taylor	10.00
+-----+
4 rows in set (0.00 sec)

mysql> select didno, name, contamt, donation2011.driveno, drivename
-> from donor2011, donation2011, drive2011
-> where donor2011.didno = donation2011.idno and donation2011.driveno = drive2011.driveno;

+-----+
| didno | name | contamt | driveno | drivename |
+-----+
11111	Stephen Daniels	25.00	100	Kids Shelter
23456	Susan Ash	20.00	100	Kids Shelter
12121	Jennifer Ames	40.00	200	Animal Home
33333	Nancy Taylor	10.00	300	Health Aid
+-----+
4 rows in set (0.00 sec)

or Donation
is called
both
didno
donor2011.didno

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mysql> select lower(name) from donor;

```
+-----+
| lower(name) |
+-----+
| stephen daniels |
| jennifer ames |
| carl hersey |
| susan ash |
| nancy taylor |
| robert brooks |
| al richards |
| sarah grove |
| dick stretton |
| john doe |
+-----+
10 rows in set (0.00 sec)
```

mysql> select max(name) from donor;

```
+-----+
| max(name) |
+-----+
| Susan Ash |
+-----+
1 row in set (0.00 sec)

http://www.tutorialspoint.com/mysql/mysql-string-functions.htm



mysql> desc donor;



| Field | Type        | Null | Key | Default | Extra |
|-------|-------------|------|-----|---------|-------|
| idno  | varchar(5)  |      | PRI |         |       |
| name  | varchar(15) | YES  |     | NULL    |       |
| stadr | varchar(15) | YES  |     | NULL    |       |
| city  | varchar(10) | YES  |     | NULL    |       |
| state | varchar(2)  | YES  |     | NULL    |       |
| zip   | varchar(5)  | YES  |     | NULL    |       |


```

```
mysql> select lower(name) from dc X +
10 rows in set (0.00 sec)

mysql> select city, left(city,4) from donor;
+-----+-----+
| city      | left(city,4) |
+-----+-----+
| Seekonk   | Seek         |
| Providence | Prov         |
| Providence | Prov         |
| Fall River | Fall         |
| Fall River | Fall         |
| Fall River | Fall         |
| Braintree | Brai         |
| Seekonk   | Seek         |
| Braintree | Brai         |
| Swansea   | Swan         |
+-----+-----+
10 rows in set (0.31 sec)

mysql> select city, right(city,4) from donor;
+-----+-----+
| city      | right(city,4) |
+-----+-----+
| Seekonk   | konk         |
| Providence | ence         |
| Providence | ence         |
| Fall River | iver         |
| Fall River | iver         |
| Fall River | iver         |
| Braintree | tree         |
| Seekonk   | konk         |
| Braintree | tree         |
| Swansea   | nsea         |
+-----+-----+
10 rows in set (0.00 sec)

mysql> select city, length(city) from donor;
+-----+-----+
| city      | length(city) |
+-----+-----+
| Seekonk   | 8             |
| Providence | 11            |
| Providence | 11            |
| Fall River | 10            |
| Fall River | 10            |
| Fall River | 10            |
| Braintree | 9             |
| Seekonk   | 8             |
| Braintree | 9             |
| Swansea   | 7             |
+-----+-----+
```

mysql> select lower(name) from donor;

10 rows in set (0.00 sec)

Database changed

mysql> select ltrim(' mine');

ltrim(' mine')
mine

1 row in set (0.00 sec)

mysql> select city, mid(city, 2, 3) from donor;

city	mid(city, 2, 3)
Seekonk	EEK
Providence	ROV
Providence	ROV
Fall River	ALL
Fall River	ALL
Fall River	ALL
Braintree	RAI
Seekonk	EEK
Braintree	RAI
Swansea	WAN

10 rows in set (0.36 sec)

mysql> select city, position('ee' in city) from donor;

city	position('ee' in city)
Seekonk	2
Providence	0
Providence	0
Fall River	0
Fall River	0
Fall River	0

mysql> select lower(name) from donor;

state	repeat(state,5)
MA	MAMAMAMAMA
RI	RIRIRIRIRI
RI	RIRIRIRIRI
MA	MAMAMAMAMA
MA	MAMAMAMAMA
MA	MAMAMAMAMA
MA	MAMAMAMAMA
MA	MAMAMAMAMA
MA	MAMAMAMAMA
MA	MAMAMAMAMA
MA	MAMAMAMAMA

10 rows in set (0.00 sec)

mysql> select city, replace(city,'ee','EE') from donor;

city	replace(city,'ee','EE')
Seekonk	SEEkonk
Providence	Providence
Providence	Providence
Fall River	Fall River
Fall River	Fall River
Fall River	Fall River
Braintree	BraintrEE
Seekonk	SEEkonk
Braintree	BraintrEE
Swansea	Swansea

10 rows in set (0.00 sec)

mysql> select city from donor;

city
Seekonk
Providence

mysql> select lower(name) from donor;

city
Seekonk
Providence
Providence
Fall River
Fall River
Fall River
Braintree
Seekonk
Braintree
Swansea

10 rows in set (0.00 sec)

mysql> select city, reverse(city) from donor;

city	reverse(city)
Seekonk	knokeeS
Providence	ecnedivorP
Providence	ecnedivorP
Fall River	reviR llaF
Fall River	reviR llaF
Fall River	reviR llaF
Braintree	eertniarB
Seekonk	knokeeS
Braintree	eertniarB
Swansea	aesnawS

10 rows in set (0.00 sec)

mysql> select city, right(city,2) from donor;

city	right(city,2)
Seekonk	nk
Providence	ce
Providence	ce

mysql> select lower(name) from dc

10 rows in set (0.00 sec)

mysql> select substring(city,3) from donor;

substring(city,3)
ekonk
vidence
vidence
ll River
ll River
ll River
aintree
ekonk
aintree
ansea

10 rows in set (0.00 sec)

mysql> select city, substring(city,3,4) from donor;

city	substring(city,3,4)
Seekonk	ekon
Providence	ovid
Providence	ovid
Fall River	ll R
Fall River	ll R
Fall River	ll R
Braintree	aint
Seekonk	ekon
Braintree	aint
Swansea	anse

10 rows in set (0.00 sec)

mysql>